

1 WHAT IS CLAIMED IS:

- 1 1. A method of processing data packets comprising:
- determining an actual arrival rate of data packets and a
- 3 number of data packets stored in a queue; and
- 4 initiating transmission of data packets in the queue
- 5 based on the actual arrival rate and the number of data
- 6 packets in the queue.
- 1 2. The method of claim 1 including receiving the data
- 2 packets from a program; and transmitting the data packets to a
- 3 device.
- 1 3. The method of claim 1 including receiving the data
- 2 packets from a device; and transmitting the data packets to a
- 3 program.
- 1 4. The method of claim 1 wherein transmitting the data
- 2 packets in the queue includes transmitting at least one burst
- 3 of data packets, wherein each burst contains a number of data
- 4 packets sufficient to maximize throughput.
- 1 5. The method of claim 1 further including storing a data
- 2 packet in the queue if the actual arrival rate is less then
- 3 the first threshold value, and scheduling a future interrupt
- 4 event to cause processing of data packets from the queue.
- 1 6. The method of claim 1 further including comparing the
- 2 actual arrival rate of data packets to a first threshold.

- 1 7. The method of claim 6 further including transmitting a
- 2 data packet without storing the data packet in the queue, if
- 3 the actual arrival rate is greater then the first threshold
- 4 value.
- 1 8. The method of claim 6 wherein the actual arrival rate is
- 2 based on a weighted average of time intervals between a
- 3 predetermined number of previous data packets and the first
- 4 threshold value corresponds to a predetermined arrival rate.
- 1 9. The method of claim 1 further including comparing the
- 2 number of data packets to a second threshold.
- 1 10. The method of claim 9 wherein the second threshold value
- 2 represents a number of unprocessed data packets.
- 1 11. An article comprising a computer-readable medium that
- 2 stores computer-executable instructions for causing a computer
- 3 system to:
- determine an actual arrival rate of data packets and a
- 5 number of data packets stored in a queue; and
- 6 initiate transmission of data packets in the queue based
- 7 on the actual arrival rate and the number of data packets in
- 8 the queue.
- 1 12. The article of claim 11 including receiving the data
- 2 packets from a program; and transmitting the data packets to a
- 3 device.

- 1 13. The article of claim 11 including receiving the data
- 2 packets from a device; and transmitting the data packets to a
- 3 program.
- 1 14. The article of claim 11 wherein transmitting the data
- 2 packets in the queue includes transmitting at least one burst
- 3 of data packets, where each burst contains a number of data
- 4 packets sufficient to maximize throughput.
- 1 15. The article of claim 11 further including instructions to
- 2 store a data packet in the queue if the actual arrival rate is
- 3 less then the first threshold value, and scheduling a future
- 4 interrupt event to cause processing of data packets from the
- 5 queue.
- 1 16. The article of claim 11 further including instructions to
- 2 compare the actual arrival rate of data packets to a first
- 3 threshold, wherein the actual arrival rate is based on a
- 4 weighted average of time intervals between a predetermined
- 5 number of previous data packets, and wherein the first
- 6 threshold value corresponds to a predetermined arrival rate.
- 1 17. The article of claim 16 further including instructions to
- 2 transmit a data packet without storing the data packet in the
- 3 queue, if the actual arrival rate is greater then the first
- 4 threshold value.
- 1 18. The article of claim 11 further including instructions to
- 2 compare the number of data packets to a second threshold,



- 3 wherein the second threshold value represents a number of
- 4 unprocessed data packets.
- 1 19. A data packet processing device comprising:
- 2 a source of data packets;
- a destination of data packets; and
- a data packet processing engine, configured to determine
- 5 an actual arrival rate of data packets and a number of data
- 6 packets stored in a queue and initiate transmission of data
- 7 packets in the queue based on the actual arrival rate and the
- 8 number of data packets in the queue.
- 1 20. The device of claim 19 wherein the processing engine is
- 2 configured to transmit the data packets in the queue includes
- 3 transmitting at least one burst of data packets, where each
- 4 burst contains a number of data packets sufficient to maximize
- 5 throughput.
- 1 21. The device of claim 19 further including storing a data
- 2 packet in the queue if the actual arrival rate is less then
- 3 the first threshold value, and scheduling a future interrupt
- 4 event to cause processing of data packets from the queue.
- 1 22. The device of claim 19 further including comparing the
- 2 actual arrival rate of data packets to a first threshold,
- 3 wherein the actual arrival rate is based on a weighted average
- 4 of time intervals between a predetermined number of previous
- 5 data packets, and wherein the first threshold value
- 6 corresponds to a predetermined arrival rate.



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- 1 23. The device of claim 22 further including transmitting a
- 2 data packet without storing the data packet in the queue, if
- 3 the actual arrival rate is greater then the first threshold
- 4 value.
- 1 24. The device of claim 19 further including comparing the
- 2 number of data packets to a second threshold, wherein the
- 3 second threshold value represents a number of unprocessed data
- 4 packets.
- 1 25. A computer network system comprising:
- an input device for receiving data packets from the
- 3 network;
- an output device for transmitting data packets to the
- 5 netwok;
- 6 wherein each device includes a data packet processing
- 7 engine configured to determine an actual arrival rate of data
- 8 packets and a number of data packets stored in a queue and
- 9 initiate transmission of data packets in the queue based on
- 10 the actual arrival rate and the number of data packets in the
- 11 queue.
- 1 26. The system of claim 25 wherein transmitting the data
- 2 packets in the queue includes transmitting at least one burst
- 3 of data packets, where each burst contains a plurality of data
- 4 packets sufficient to maximize throughput.



- 1 27. The system of claim 25 further including storing a data
- 2 packet in the queue if the actual arrival rate is less then
- 3 the first threshold value, and scheduling a future interrupt
- 4 event, wherein the occurrence of the future interrupt event
- 5 causes processing of data packets from the queue.
- 1 28. The system of claim 25 further including comparing the
- 2 actual arrival rate of data packets to a first threshold,
- 3 wherein the actual arrival rate is based on a weighted average
- 4 of time intervals between a predetermined number of previous
- 5 data packets, and wherein the first threshold value
- 6 corresponds to a predetermined arrival rate
- 1 29. The system of claim 28 further including transmitting a
- 2 data packet without storing the data packet in the queue, if
- 3 the actual arrival rate is greater then the first threshold
- 4 value.
- 1 30. The system of claim 25 further including comparing the
- 2 number of data packets to a second threshold, wherein the
- 3 second threshold value represents a number of unprocessed data
- 4 packets.